Appln No. 10/753,421
Amdt. Dated April 18, 2006
Response to Office Action of February 7, 2006   3

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A system that prints three dimensional products, the system including

an object incorporation device that inserts at least one non-printed object into at least one cavity created during the printing process, the object incorporation device incorporating the at least one non-printed object into the at least one cavity during the printing of the respective printed ~~object~~product.

2. (Original) The system of claim 1 wherein the at least one cavity is created with substantially the same height as the at least one non-printed object to be inserted into the at least one cavity.

3. (Original) The system of claim 1 wherein the at least one cavity is sized so that after insertion of the object, the top of the at least one non-printed object is substantially flush with the surrounding material of the partially completed product.

4. (Original) The system of claim 1 wherein the at least one cavity is shaped to maintain at least one of the position and orientation of the at least one non-printed object.

5. (Original) The system of claim 1 wherein the at least one cavity is shaped to maintain both the position and orientation of the non-printed object.

6. (Original) The system of claim 1 wherein the shape of the at least one cavity substantially matches the shape of the at least one non-printed object.

7. (Original) The system of claim 1 wherein the at least one non-printed object is connected to electrical connections printed by the system.

8. (Original) The system of claim 1 wherein a plurality of non-printed objects are inserted into one cavity.

9. (Original) The system of claim 1 being a three dimensional product creation system that prints products layer by layer, the system printing at least part of each of multiple layers simultaneously.

10. (Original) A system as claimed in claim 1 wherein the system includes a plurality of printheads.

11. (Original) A system as claimed in claim 1 wherein each layer is defined by a plurality of voxels arranged in a regular array and wherein the voxels of each layer are printed so as to be offset by half a voxel relative to the voxels of adjacent layers in a first direction, a second direction perpendicular to the first direction or both the first and second directions.

12. (Original) A system as claimed in claim 1 wherein the printheads are configured to enable printing of at least two different materials in at least one layer.

13. (Original) A system as claimed in claim 1 wherein the printheads are configured such that at least one of the layers may be printed with a first set of materials and at least one other of the layers may be printed with a second set of materials, and
wherein the first and second sets are not the same.

14. (Original) A system as claimed in claim 1 wherein the system is configured to enable at least one first printhead that is initially configured to print at least part of a first layer to be dynamically reconfigured to print at least 10 part of a second layer.

15. (Original) A system as claimed in claim 1 wherein the system is configured to enable at least one first printhead that is initially configured to print at least part of a first layer to be dynamically reconfigured to print at least part of a second layer, and
wherein if at least one printhead initially configured to print the second layer fails whilst printing said second layer, said at least one first printhead is dynamically reconfigured to complete the printing of at least part of said second layer.

16. (Original) A system as claimed in claim 1 wherein the system includes semiconductor memory and wherein data defining at least one layer is stored in the semiconductor memory.

17. (Original) A system as claimed in claim 1, the system executes a process, the system including a plurality of subsystems, each of which performs a stage of the process,

each of the subsystems configured to perform one of a first subset of N_1 of the stages, where N is greater than 1 and to change the stage of the subset being performed on receipt of a change instruction;

wherein, in the event that one of the subsystems fails, at least one of the remaining subsystems synchronously changes to performing the respective stage of the failed subsystem without requiring transfer of data relating the respective stage to the said at least one remaining subsystems, and

when a subsystem changes to performing a different stage, the system reconfigures the subsystem to be capable of performing a second subset N_2 of the stages where N_1 and N_2 have the same number of stages.

18. (Original) A system as claimed in claim 1 including a least two printheads, a first one of the printheads printing a first material and a second one of the printheads printing a second material, the first material being cured by a first method and the second material being cured by a second method and wherein the first and second methods are different.

19. (Original) A system as claimed in claim 1 including at least one printhead for printing material to create a 10 printed product, and

an object incorporation device that incorporates inorganic semiconductors into the product being printed whilst the at least one printhead prints the product.

20. (Original) A system as claimed in claim 1 including at least one object incorporation device that incorporates non-printed objects into partially completed product, the non-printed objects not being printed by the system.

21. (Original) A system as claimed in claim 1 including at least one printhead that prints electrical connections to at least one object incorporated in the products.

22. (Original) A system as claimed in claim 1 including a least two printheads, wherein a first printhead is actively maintained at a first temperature and a second printhead is actively maintained at a second temperature.